

GRADE 7

PERIMETER, AREA & COMPOSITE SHAPES

Complete Printable Worksheet Pack

6 Worksheets	Separate Answer Keys
Perimeter & Area	Composite Shapes
Scale & Applications	Reasoning Challenges

A4 printable • International Grade 7 level

Worksheet 1: Perimeter of 2D Shapes

Show your working. Use correct units and explain your reasoning where asked.

1. Find the perimeter of a rectangle measuring 14 cm by 8 cm.
2. A square has side length 11.5 cm. Find its perimeter.
3. A triangle has side lengths 7.5 cm, 9 cm and 12.5 cm. Find its perimeter.
4. A regular pentagon has each side 6.8 cm. Find its perimeter.
5. A rectangle has perimeter 54 cm and length 17 cm. Find its width.
6. A square has perimeter 46.4 cm. Find the side length.
7. A rectangular garden is 24 m long and 16.5 m wide. How much fencing is needed to go around it once?
8. A 36 cm wire is bent into a rectangle with length 11 cm. Find its width.
9. A shape has sides 8 cm, 6 cm, 5 cm, 9 cm and 12 cm. Find its perimeter.
10. Explain why two rectangles can have the same perimeter but different areas. Give an example.

Answer Key 1: Perimeter of 2D Shapes

Equivalent correct methods are acceptable.

1. 44 cm
2. 46 cm
3. 29 cm
4. 34 cm
5. 10 cm
6. 11.6 cm
7. 81 m
8. 7 cm
9. 40 cm
10. Example: $12\text{ cm} \times 6\text{ cm}$ and $10\text{ cm} \times 8\text{ cm}$ both have perimeter 36 cm, but their areas are 72 cm^2 and 80 cm^2 .

Worksheet 2: Area of Rectangles, Squares & Triangles

Show your working. Use correct units and explain your reasoning where asked.

1. Find the area of a rectangle 18 cm by 7.5 cm.
2. Find the area of a square with side 13 cm.
3. Find the area of a triangle with base 16 cm and height 9 cm.
4. A parallelogram has base 12.5 cm and perpendicular height 8 cm. Find its area.
5. A rectangle has area 252 cm^2 and length 18 cm. Find its width.
6. A triangle has area 84 cm^2 and base 14 cm. Find its perpendicular height.
7. A square has area 324 cm^2 . Find its side length and perimeter.
8. A triangular sign has base 2.4 m and height 1.5 m. Find its area.
9. A classroom floor is 9.6 m by 7.5 m. Find its area.
10. A rectangle and triangle have the same base of 20 cm and the same height of 12 cm. Compare their areas.

Answer Key 2: Area of Rectangles, Squares & Triangles

Equivalent correct methods are acceptable.

1. 135 cm^2
2. 169 cm^2
3. 72 cm^2
4. 100 cm^2
5. 14 cm
6. 12 cm
7. Side 18 cm ; perimeter 72 cm
8. 1.8 m^2
9. 72 m^2
10. Rectangle = 240 cm^2 ; triangle = 120 cm^2 . The rectangle has twice the area.

Worksheet 3: Missing Dimensions & Area/Perimeter Reasoning

Show your working. Use correct units and explain your reasoning where asked.

1. A rectangle has area 192 cm^2 and width 12 cm . Find its length and perimeter.
2. A rectangle has perimeter 70 m and length 22 m . Find its width and area.
3. A square and rectangle both have perimeter 48 cm . The square has side 12 cm . If the rectangle has length 16 cm , find its width and area.
4. A triangle has area 108 cm^2 and height 12 cm . Find its base.
5. A parallelogram has area 154 cm^2 and base 14 cm . Find its perpendicular height.
6. A rectangle is 4 cm longer than its width. Its area is 96 cm^2 . Find its dimensions.
7. A rectangular poster has perimeter 100 cm . Its length is twice its width. Find both dimensions.
8. A garden has area 360 m^2 . Its length is 5 m more than its width. Find the whole-number dimensions.
9. Can a rectangle with perimeter 40 cm have area 120 cm^2 ? Explain.
10. Two rectangles have the same area of 96 cm^2 . Give two different whole-number dimension pairs and compare their perimeters.

Answer Key 3: Missing Dimensions & Area/Perimeter Reasoning

Equivalent correct methods are acceptable.

1. Length 16 cm; perimeter 56 cm
2. Width 13 m; area 286 m²
3. Width 8 cm; area 128 cm²
4. Base 18 cm
5. Height 11 cm
6. 8 cm by 12 cm
7. Width 16 cm, length 33 cm
8. 15 m by 20 m
9. Yes. Example 10 cm × 10 cm has perimeter 40 cm and area 100 cm², so not 120. Therefore no.
10. Example: 8×12 gives perimeter 40 cm; 6×16 gives perimeter 44 cm.

Worksheet 4: Composite Shapes & Real-Life Areas

Show your working. Use correct units and explain your reasoning where asked.

1. An L-shaped floor can be split into rectangles of $10\text{ m} \times 4\text{ m}$ and $6\text{ m} \times 3\text{ m}$. Find its total area.
2. A large rectangle is $18\text{ cm} \times 12\text{ cm}$. A $6\text{ cm} \times 5\text{ cm}$ rectangle is removed from one corner. Find the remaining area.
3. A $20\text{ m} \times 14\text{ m}$ garden has a $5\text{ m} \times 4\text{ m}$ flower bed and a $6\text{ m} \times 3\text{ m}$ pond. Find the remaining area.
4. A T-shaped sign is made from a $14\text{ cm} \times 4\text{ cm}$ rectangle and a $6\text{ cm} \times 5\text{ cm}$ rectangle joined without overlap. Find its area.
5. A floor is $12\text{ m} \times 9\text{ m}$. A rectangular rug $4.5\text{ m} \times 3\text{ m}$ covers part of it. Find the uncovered area.
6. A rectangular wall is $8\text{ m} \times 3.5\text{ m}$. A door $2\text{ m} \times 0.9\text{ m}$ and a window $1.5\text{ m} \times 1.2\text{ m}$ are not painted. Find the area to be painted.
7. A composite shape is formed by a $15\text{ cm} \times 8\text{ cm}$ rectangle with a $7\text{ cm} \times 5\text{ cm}$ rectangle attached along one full side. Find the total area.
8. A square courtyard has side 18 m . A $4\text{ m} \times 7\text{ m}$ rectangular section is planted with grass. What area remains?
9. A $30\text{ m} \times 20\text{ m}$ field has a 2 m -wide path running inside all four edges. Find the area of the path.
10. A $16\text{ m} \times 10\text{ m}$ rectangle has a $6\text{ m} \times 4\text{ m}$ rectangular section removed. The remaining shape is used as a floor. Find its area and give one possible perimeter if the removed section is cut from a corner.

Answer Key 4: Composite Shapes & Real-Life Areas

Equivalent correct methods are acceptable.

1. $40 + 18 = 58 \text{ m}^2$
2. $216 - 30 = 186 \text{ cm}^2$
3. $280 - 20 - 18 = 242 \text{ m}^2$
4. $56 + 30 = 86 \text{ cm}^2$
5. $108 - 13.5 = 94.5 \text{ m}^2$
6. $28 - 1.8 - 1.8 = 24.4 \text{ m}^2$
7. $120 + 35 = 155 \text{ cm}^2$
8. $324 - 28 = 296 \text{ m}^2$
9. Outer 600 m^2 ; inner $26 \times 16 = 416 \text{ m}^2$; path = 184 m^2
10. Area = $160 - 24 = 136 \text{ m}^2$; if cut from a corner, perimeter = 52 m .

Worksheet 5: Scale, Units & Area Applications

Show your working. Use correct units and explain your reasoning where asked.

1. A map scale is 1 cm : 4 km. A rectangular park measures 3.5 cm by 2 cm on the map. Find its actual dimensions and area.
2. A floor plan uses 1 cm : 2 m. A room is drawn as 5 cm $\times$ 3.5 cm. Find its actual area.
3. A garden is 24.5 m by 16.2 m. Estimate its area by rounding to whole metres, then calculate the exact area.
4. A rectangular playground has an area of 1,200 m² and length 40 m. Find its width and perimeter.
5. A square field has area 625 m². A 2 m-wide path is built inside the field along all four edges. Find the area inside the path.
6. A triangular banner has base 3.6 m and height 2.2 m. Find its area in m² and cm².
7. A rectangular pool is 12.5 m by 8 m. Tiles cover the entire bottom. Each tile covers 0.25 m². How many tiles are needed?
8. A rectangular wall is 7.2 m by 3 m. Paint covers 6 m² per litre. How many litres are needed, ignoring doors and windows?
9. A square and a rectangle both have area 144 m². The square has side 12 m; the rectangle has dimensions 9 m $\times$ 16 m. Compare their perimeters.
10. A scale drawing shows a triangular garden with base 4 cm and height 3 cm. Scale is 1 cm : 5 m. Find the actual area.

Answer Key 5: Scale, Units & Area Applications

Equivalent correct methods are acceptable.

1. $14 \text{ km} \times 8 \text{ km} = 112 \text{ km}^2$
2. Actual $10 \text{ m} \times 7 \text{ m}$; area 70 m^2
3. Estimate $25 \times 16 = 400 \text{ m}^2$; exact $24.5 \times 16.2 = 396.9 \text{ m}^2$
4. Width 30 m ; perimeter 140 m
5. Inner side 21 m ; area 441 m^2
6. $3.96 \text{ m}^2 = 39,600 \text{ cm}^2$
7. Area 100 m^2 ; 400 tiles
8. Area 21.6 m^2 ; 3.6 L
9. Square perimeter 48 m ; rectangle perimeter 50 m , so rectangle is 2 m greater
10. Actual base 20 m , height 15 m ; area 150 m^2

Worksheet 6: Perimeter, Area & Composite Shapes Challenge

Show your working. Use correct units and explain your reasoning where asked.

1. A rectangle has perimeter 84 cm. Its length is 3 cm more than twice its width. Find its dimensions and area.
2. A $24\text{ m} \times 18\text{ m}$ rectangle has two identical $6\text{ m} \times 4\text{ m}$ corners removed. Find the remaining area.
3. A garden has perimeter 100 m and length 30 m. A rectangular pond $8\text{ m} \times 5\text{ m}$ occupies part of it. Find the garden's width, total area and remaining area.
4. A composite shape consists of a $12\text{ cm} \times 9\text{ cm}$ rectangle with a semicircle of diameter 9 cm attached to one 9 cm side. Find the total area using $\pi = 3.14$.
5. A square has side 20 m. A smaller square of side 8 m is removed from a corner. Find the remaining area and the new perimeter.
6. A rectangular sheet is $32\text{ cm} \times 20\text{ cm}$. Four identical $4\text{ cm} \times 3\text{ cm}$ rectangles are cut from the corners. Find the remaining area.
7. A floor is $15\text{ m} \times 12\text{ m}$. A border of uniform width 1.5 m is built inside it. Find the area of the border.
8. Two rectangles have equal perimeter of 60 cm. One is $19\text{ cm} \times 11\text{ cm}$. The other has width 14 cm. Find its length and compare their areas.
9. A rectangle is $25\text{ m} \times 16\text{ m}$. A triangular section with base 10 m and height 8 m is removed. What percentage of the original area remains?
10. Design a rectangle with whole-number dimensions, perimeter 48 cm and area greater than 130 cm^2 . Give one possible design and explain why it works.

Answer Key 6: Perimeter, Area & Composite Shapes Challenge

Equivalent correct methods are acceptable.

1. Width 13 cm, length 29 cm; area 377 cm^2
2. $432 - 48 = 384 \text{ m}^2$
3. Width 20 m; garden area 600 m^2 ; remaining area 560 m^2
4. Rectangle 108 cm^2 ; semicircle $= \frac{1}{2} \times 3.14 \times 4.5^2 = 31.7925 \text{ cm}^2$; total $\approx 139.79 \text{ cm}^2$
5. Remaining area $400 - 64 = 336 \text{ m}^2$; new perimeter remains 80 m because a corner cut replaces equal lengths
6. $640 - 4 \times 12 = 592 \text{ cm}^2$
7. Outer 180 m^2 ; inner dimensions $12 \times 9 = 108 \text{ m}^2$; border $= 72 \text{ m}^2$
8. $2(L+14)=60 \rightarrow L=16 \text{ cm}$; first area 209 cm^2 , second 224 cm^2 ; second is 15 cm^2 greater
9. Original 400 m^2 ; triangle 40 m^2 ; remaining $360 \text{ m}^2 = 90\%$
10. Example $14 \text{ cm} \times 10 \text{ cm}$: perimeter 48 cm and area 140 cm^2 , which is greater than 130 cm^2 .